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## On the "Unaccusativity" of Psychological Verbs\*

Manabu Hashimoto

### 0. Introduction

This paper concerns the interaction between lexical properties of psychological verbs (henceforth psych-verbs) and their syntactic structure. Representative examples of psych-verbs are given in (1) and (2):

- (1) a. Bill enjoyed the movie.  
b. The girl feared ghosts.  
c. Jane hated his manner of speaking.
- (2) a. The play amused John.  
b. The darkness frightened the child.  
c. The confession surprised Mary.

Let us call the verbs in (1) the Experiencer Subject (ES) class and those in (2) the Experiencer Object (EO) class, following Pesetsky (1990). In this paper we will focus attention on the properties of the EO class, because they are especially controversial.

So far the most influential analysis of psych-verbs in the principles-and-parameters theory is that of Belletti and Rizzi (1988) (henceforth B&R). B&R argue that the lexical representation of the EO class and its syntactic derivation are as follows:

- (3) a.  $\theta$ -grid [EXP, TH]  
          |  
          Case-grid [ACC, --]  
b. Given a  $\theta$  grid [EXP, TH], the Experiencer is projected to a higher position than the Theme.  
c. D-str.: [<sub>IP</sub> e [<sub>VP</sub> [<sub>v</sub> V TH] EXP]  
d. V is a structural Case assigner iff it has an external argument.  
e. S-str.: [<sub>IP</sub> TH<sub>i</sub> [<sub>VP</sub> [<sub>v</sub> V t<sub>i</sub>] EXP]

(Belletti and Rizzi 1988)

Verbs of the EO class take an experiencer and a theme as their internal argu-

ments, hence displaying an unaccusative-like argument structure except for the number of arguments. In addition, B&R stipulate that the experiencer receives inherent accusative Case. The lexical representation in (3a) illustrates that this inherent Case is specified in the Case grids of these verbs and is linked to the experiencer slot in the  $\theta$ -grid. The version of Burzio's Generalization in (3d) does not characterize the EO-class verbs as structural Case assigners because they have no external argument. This is why B&R stipulate that this accusative must be inherent.<sup>1</sup> Following the projection rule (3b), constructions involving the EO-class verbs have the D-structure (3c). The theme must move to the specifier position of IP to receive Case. Thus the S-structure in (3e) is derived via NP-movement.<sup>2</sup>

B&R draws the hypotheses summarized above based on certain facts in Italian such as anaphoric cliticization, arbitrary *pro*, binding phenomena and so forth. B&R's unaccusative analysis of EO-verbs has been basically followed in many articles, e.g. Georgopoulos (1987), Johnson (1985), Ono (1990), and Roberts (1989) among others. Some researchers, however, have presented evidence which is incompatible with the unaccusative analysis recently. For instance, Farrell (1990) offers convincing arguments concerning Perfect Auxiliary Selection and Past Participle Agreement for not treating the theme argument as the same kind of derived subject as is found in passive and unaccusative constructions. Unfortunately these two phenomena do not exist in English. As for B&R's arguments in favor of their unaccusative analysis, Pesetsky (op.cit.) reveal that most of their alleged diagnostics of unaccusativity are unreliable. The aim of this paper is to present some new morpho-syntactic arguments for the idea that the subject of EO-class verbs is an external argument. Section 1 discusses several syntactic issues, while morpho-syntactic issues are investigated in section 2. We draw the conclusion of this study in the final section.

### 1. Against the Unaccusative Analysis; Syntactic Arguments

This section first introduces two syntactic arguments against the unaccusative analysis of EO verbs which have been given in previous studies and then presents a new argument which has not been acknowledged so far in the literature.

Let us first introduce a valid argument presented in Stowell (1987). Consider the paradigm of *as* constructions given below:

## (4) Transitive Subject:

- a. \*John owns the gun, as e shows that he is guilty.
- b. \*Hitler broke his promise, as e made Chamberlain finally change his policy.

## (5) Transitive Object:

- a. Bill is a liar, as Mary already knows e.
- b. The earth is round, as Mary convinced us e.

(6) Passive: Mary claimed that John was a fool, as was subsequently proven e to us all.

Raising: Mary said John was a fool, as seemed e obvious to everybody.

Unaccusative: Hitler broke his promise, as was expected to happen e.

## (7) Psych-verb:

- a. \*Jenny appeared on TV today, as amused Bill.
- b. \*The earth is round, as surprised Mary.

(Stowell 1987)

In order to explain the contrast between (4) and (5-6) Stowell (1987) argues that the CP gap (represented as e in its D-structure position) in as-constructions must be lexically governed at D-structure. If the CP gap in (7) is in object position at D-structure, hence lexically governed by the psych-verbs, the sentences should be well-formed. Therefore, the ill-formedness of the sentences in (7) suggests that the gap is in subject position at D-structure like that of transitive subject in (4), which in turn suggests that the theme argument of psych-verbs is an external argument.

Another piece of evidence against the unaccusativity of EO-class verbs is given by Campbell and Martin (1989) with respect to PP-extraposition from NP as shown in (8):

(8) a. Transitive Subject: \*[Three movies e] detailed crimes [about the mafia].

## b. Transitive Object:

I showed [Three movies e] to the students [about the mafia].

c. Passive: [Three movies e] were shown t [about the mafia].d. Unaccusative: [Three stories e] were circulating t [about John].

e. Psych-verb: \*[Three movies e] interested us [about the mafia].

(Campbell and Martin 1989)

Based on the contrast between (8a) and (8b-d), Campbell and Martin propose that PP-extraposition from NP is possible only from NPs that are lexically governed at D-structure. The parallel ungrammaticality of (8a) and (8e) shows that the subject of EO-verbs is not a derived, but a deep subject, hence an external argument.

The third syntactic argument against B&R's analysis concerns presentational there-constructions. As pointed out by Burzio (1986), the majority of verbs with which there can appear are unaccusatives.<sup>3</sup> Some examples are given in (9):

- (9) a. There arrived three men in the station.
- b. There has developed a bad situation.
- c. There will occur a riot.
- d. There grew some corn in our garden last year.

Pleonastic there can be inserted in subject position at D-structure because IP-SPEC position is empty, an argument being in the object position of the verb. Essentially the same derivation is predicted to be grammatical in the case of psych-verbs if the theme originates in D-structure object position as B&R claim. This prediction, however, is not borne out:

- (10) a. \*There amused many books several children.
- b. \*There frightened ghosts some girls.
- c. \*There surprised some movies the audience.
- d. \*There worried traffic noise some students.

Note that the theme argument in (10) satisfies the Case requirement in that a member of its chain, viz. there, is assigned nominative Case. (See Burzio (1986) and Safir (1985) for discussion.)

## 2. Morpho-syntactic Arguments

### 2.1. -er

We assume, following the Unaccusative Hypothesis of Perlmutter (1978) and subsequent works such as Burzio (1986), that intransitive verbs fall into two classes, namely, the unergative and unaccusative classes.<sup>4</sup> While the single argument of an unergative verb is an external argument, that of an unaccusative is an internal argument. Under this assumption, let us consider -er nominals such as (11):

- (11) a. destroyer, helper, receiver, etc.
- b. dancer, runner, sleeper, etc.
- c. \*arriver, \*faller, \*grower, etc.

Transitive verbs, which have both an external argument and an internal argument, can form a derived word with the suffix in question as seen in (11a). While a suffix -er can attach to unergative base verbs as in (11b), it cannot attach to unaccusative base verbs as in (11c). From this observation we can derive the following generalization, as has been proposed in Levin and Rappaport (1988):

- (12) -er nominals are only derived from verbs that have external arguments, and they refer to the external argument of the base verb.

Let us now test whether EO-class psych-verbs have external arguments or not, using the generalization (12) as a relevant diagnosis:

- (13) a. Movies are the main amuser for the people in Hong Kong.
- b. A roll of thunder can be a frightner for small children.
- c. The problem was a puzzler for him in those days.

The well-formedness of these examples demonstrates that psych-verbs do have external arguments, which turn out to be theme arguments.

## 2.2. -ing

In this subsection we examine verb+ing forms used as predicates and as modifiers, illustrated in (14a) and (14b) respectively:<sup>5</sup>

- (14) a. The boy is walking.  
b. the walking boy

Note that predication and modification are essentially similar devices that relate external arguments to elements outside the projection of  $\theta$ -marking heads. Therefore, (the) boy in (14) is understood to be the external argument of walk. Under this assumption, observe psych-verb+ing forms:

- (15) a. The story was very amusing (for the students).  
b. the amusing story  
cf. \*the amusing students (in the relevant sense of (a))

The optionality of the experiencer argument in (15a) suggests that the argument structure of the base verb alters under the morphological effect of suffixation. The experiencer argument is suppressed and linked to the benefactive/malfactive phrase in syntax, parallel with the agent argument of passive verb linked to by-phrase.<sup>6</sup> On the other hand, the theme argument is inherited from the base verb, having been unaffected. Contrary to our hypothesis, Roberts (1989) adopts B&R's unaccusative analysis and claims that attaching -ing does not effect any change both in the argument structure of base verb and in its Case assignment property. This means that both of the arguments of EO-verbs remain obligatory internal arguments after -ing suffixation. The problem is that Roberts' analysis can not explain the optionality of the experiencer. Roberts tries to solve this problem by supposing that inherent Case is not obligatorily assigned. However, this gives rise to another problem, namely, it incorrectly predicts that the experiencer of base verbs might also be optional. This prediction is not, however, borne out, as is obvious from examples like That movie depressed \*(the boy).

## 2.3. -able

As is well-known, -able adjectives are often formed with transitive verbs as in (16):

- (16) a. This furniture is arrangeable for a price.  
 b. Sick children are not curable without medicine.  
 c. These bolts are removable under certain conditions.

(Randall 1988)

But, some intransitive verbs can serve as the base as well:

- (17) a. The trends of fashion are alterable every year.  
 b. Raw foods are perishable in the summer.  
 c. The weather is variable in this part of the country.  
 (18) \*barkable, \*danceable, \*runnable, \*swimmable, \*weepable, etc.

While the base verbs of (17) are unaccusative, those of (18) are unergative. From these observations, Horn (1980) draws the proper generalization as in (19):

- (19) The suffix -able can be attached only to a verb taking an internal argument and -able adjectives are always associated with the internal argument of the verbal base.

Let us now turn to psych-verb+able forms:

- (20) a. ?Small children are amusable in that amusement park.  
 b. ?Students are depressable during qualifying exams.  
 c. ?The girl is satisfiable when she is in a good mood.  
 (21) a. \*That kind of joke is amusable in the gloomy atmosphere.  
 b. \*Harsh criticisms are depressable in those situations.  
 c. \*Words of praise are satisfiable if they are said sincerely.

As the well-formedness of (20) confirms, the experiencer argument is an internal argument under the generalization in (19). Then, under the same generalization, if the theme argument were an internal argument, we should have well-formed sentences with the theme subject, but they are ungrammatical as shown in (21). Thus, the ill-formedness of (21) constitutes strong evidence against the unaccusative analysis.



### 3. Conclusion

We have reinforced the hypothesis that the theme argument of EO-class verbs is not an internal but an external argument, contra B&R, based on syntactic and morpho-syntactic arguments which have not been pointed out thus far in the literature.<sup>7, 8</sup>

### Notes

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<sup>1</sup> Note that the "inherency" of accusative Case is not morphologically realized on the experiencer argument in Italian (and in English as well, but, as for English, we cannot tell inherent accusative Case from structural accusative Case in the first place). Therefore, unless B&R offer independent empirical evidence for this inherency, it is a mere stipulation derived from theoretical demand. Moreover, if this inherent Case is assigned to the theme argument, it is the experiencer that must move to the IP-SPEC position. Thus the structure such as John amused the play is predicted to be grammatical, contrary to the fact. B&R cannot exclude this possibility on principled grounds.

<sup>2</sup> This NP-movement is reminiscent of the transformation originally known as "Flip" or "Psych-movement". But, strictly speaking, the latter was supposed to permute subject and object of psych-verbs. For details, see Postal (1971).

<sup>3</sup> I thank Roger Martin for bringing the relevance of there-constructions to my attention.

Note in passing that the following sentences in (i a, c) are grammatical, though they are somewhat awkward semantically, compared with the perfect sentences in (i b, d) involving verbs of appearance:

- (i) a. There disappeared ship by ship.
- b. There appeared ship by ship.

- c. There sank a green monster into the lagoon.
- d. There rose a green monster from the lagoon.

This semantic contrast was originally mentioned in Jespersen (1909:49).

Note also that there exists a certain class of unergative verbs which seemingly allow there-constructions under certain semantic interpretations:

- (ii) a. There walked into the bedroom a unicorn.
- b. There ambled into the room a frog. (Milsark 1974)

The grammaticality of cases like (ii) can be explained if there-construction could be derived not only by inserting there in D-structure, but also by insertion after rightward movement of the external argument. However, other evidence suggests that these verbs might actually be underlyingly unaccusatives. On the arguments supporting for this hypothesis, see Martin (1991) and Torrego (1989) among others.

<sup>4</sup> Perlmutter gives a semantic characterization of these two classes:

- (i) a. Unergatives include predicates describing willed or volitional acts, manner-of-speaking verbs, verbs of sounds made by animals, and verbs expressing certain involuntary bodily processes, etc.
- b. Unaccusatives include predicates of existing and happening, verbs expressing the voluntary emission of stimuli that impinge on the senses, aspectual predicates, and duratives, etc.

Though the relation between the meaning of intransitive verbs and their membership in the unergative or unaccusative classes is more complicated than this kind of simple generalization suggests, it is suffice for arguments in this paper.

<sup>5</sup> With regard to (14b), Ono (1990) notices the following contrast:

- (i) a. the running boy, the sleeping boy, the groaning father,...
- b. \*the killing boy, \*the persuading ideas, \*the making children,...
- c. an amazing story, an interesting book, a surprising fact,...

In the first place, the fundamental difference between intransitive and transitive verbs requires an explanation. Furthermore, there is a more curious difference in acceptability between transitive and psych-verbs. At present we do not have an explanation for this contrast, and hence leave it open for future study.

<sup>6</sup> That is, it may be an argument-adjunction the sense of Grimshaw (1990). As for (15b), the experiencer can occupy the prenominal position only when it compounds with its  $\theta$ -marking head as the left member of compound:

- (i) a. ?the student-amusing story
- b. \*the amusing-(for)-student story

This contrast can be observed with respect to the standard transitive verbs:

- (ii) a. ?the flower-arranging girl
- b. \*the arranging-flower girl

Though semantic and/or lexical factors may be involved, we tentatively assume that a principle like the Head Final Filter proposed by Williams (1981) (roughly speaking, the head of the phrase must be final in structures like the proud man in contrast with \*the proud of his children man) controls the contrast in (i - ii).

<sup>7</sup> As to an analysis of psych-verbs in Japanese, refer to Hashimoto, Hoshi, Shimada, and Takano (1990, the summary of this paper is in this volume). They propose that there are two types of psych-constructions in Japanese, both of which have biclausal structures parallel to causative constructions.

<sup>8</sup> To conclude this study, let us mention a recalcitrant problem which remains to be solved in both our analysis and B&R's analysis. This potential puzzle concerns the relevant English Binding facts described below:

- (i) a. \*Each other's friends murdered the men.
- b. \*Pictures of himself sent John a message.
- c. \*That picture of himself flatters John.

As is obvious from (i), it is usually the case that anaphors contained within

the subject cannot be bound by the object. On the other hand, E0 class verbs permit backwards binding in violation of the usual c command condition on bound anaphora:

- (ii) a. Pictures of each other annoy the politicians.
- b. Stories about herself generally please Mary.
- c. Each other's health worried the students.

B&R argues that if the surface subject in these examples is c-commanded by the Experiencer at D-structure, then we can explain these binding peculiarities of E0-verbs if Principle A applies at D-structure. On the other hand, our analysis can not predict the grammaticality of the structure in (ii) under the c-command condition mentioned above. However, the phenomenon seen in (ii) extends beyond the domain of E0-verbs to a much wider range of constructions:

- (iii) a. Each other's remarks made John and Mary angry.
- b. Stories about herself caused Mary's head to ache.
- c. Pictures of himself gave Bill a head ache.
- d. Each other's criticisms forced John and Mary to confront their problems.

(Campbell and Martin 1989, Pesetsky 1990)

It is hard to imagine there is any empirical evidence which supports the unaccusative solution that the subject is generated as a object of these verbs at D-structure in such constructions as (iii), as is correctly pointed out by Pesetsky (op.cit.). Note that the Italian counterparts of (iii) are also well-formed, according to Pesetsky (op.cit.). Thus the possibility of backwards binding in (ii-iii) in contrast with (i) poses a problem both for our analysis and for B&R's analysis. We leave this puzzle open for future research.

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